What is Claimed is:

1. A receiver which converts a band to a base band by a local oscillator of a quadrature carrier wave signal to perform demodulation processing, comprising:

a broad band limiting section which limits the band with respect to a received signal in a broad band;

a first frequency conversion section which converts a frequency of the band-limited received signal into that of a low frequency band at a local oscillation frequency having an offset with respect to a reception frequency;

a digital conversion section which converts the frequency-converted received signal to a digital signal at a specific sampling frequency;

an image rejection section which subjects the digital signal to image rejection processing;

a narrow band limiting section which extracts a narrow band signal of a desired wave from an image-rejected broad band signal;

a second frequency conversion section which performs frequency conversion processing to remove the offset from the narrow band signal;

a third frequency conversion section which reduces the frequency with respect to the image-rejected signal; and

a rate conversion section which subjects an output from the third frequency conversion section to rate conversion to lower the sampling frequency,

wherein the narrow band limiting section extracts the narrow band signal of the desired wave from the rate-converted broad band signal.

2. The receiver according to claim 1, wherein a plurality of sets of the image rejection section, third frequency conversion section, and rate conversion section are continuously connected and disposed.

3. The receiver according to claim 1, wherein the image rejection section comprises:

a HILBERT filter which subjects a quadrature component of the inputted digital signal to 90-degrees phase shift processing by HILBERT conversion;

a delay unit which delays and outputs an in-phase component of the inputted digital signal by the same time as a delay time in the HILBERT filter; and

an adder which performs addition or subtraction with respect to outputs from the HILBERT filter and delay unit.

4. The receiver according to claim 2, wherein the image rejection section comprises:

a HILBERT filter which subjects a quadrature component of the inputted digital signal to 90-degrees phase shift processing by HILBERT conversion;

a delay unit which delays and outputs an in-phase component of the inputted digital signal by the same time as

a delay time in the HILBERT filter; and

an adder which performs addition or subtraction with respect to outputs from the HILBERT filter and delay unit.

5. The receiver according to claim 1, wherein the rate conversion section is a decimation filter which lowers the sampling frequency by decimation-in-time processing.

6. The receiver according to claim 2, wherein the rate conversion section is a decimation filter which lowers the sampling frequency by decimation-in-time processing.

7. The receiver according to claim 1, wherein the third frequency conversion section comprises:

a first SIN table and first COS table predetermined for performing frequency conversion processing to reduce the frequency;

a first multiplier which multiplies an input signal by a value of the first SIN table to output a in-phase component signal;

a second multiplier which multiplies the input signal by a value of the first COS table to output a quadrature component signal;

a second SIN table and second COS table predetermined for performing frequency conversion processing to remove a micro frequency offset;

a third multiplier which multiplies the in-phase

component signal from the first multiplier by the value of the second SIN table;

a fourth multiplier which multiplies the in-phase component signal from the first multiplier by the value of the second COS table;

a fifth multiplier which multiplies the quadrature component signal from the second multiplier by the value of the second COS table;

a sixth multiplier which multiplies the quadrature component signal from the second multiplier by the value of the second SIN table;

a subtractor which performs subtraction with respect to outputs from the third and fifth multipliers; and

an adder which adds the outputs from the fourth and sixth multipliers.

8. The receiver according to claim 3, wherein the HILBERT filter comprises:

an odd number of delay units which delay and output input signals are successively connected and are symmetrically divided into front-stage and rear-stage groups centering on a central delay unit among the odd number of delay units;

a plurality of adders which perform subtraction with respect to the input signals of the delay units of the front-stage group and output signals of the delay units of the rear-stage group, the input and output signals having a

symmetrical relation, and an adder which performs the subtraction with respect to the input and output signals of the central delay unit;

a plurality of multipliers which multiply the output signals from the respective adders by a filter coefficient; and

an adder which adds outputs from the plurality of multipliers.

9. A receiver which converts a band to a base band by a local oscillator of a quadrature carrier wave signal to perform demodulation processing, comprising:

a first frequency conversion section which converts a frequency to that of a low frequency band at a local oscillation frequency having an offset with respect to a reception frequency;

an analog-digital conversion section which converts the frequency-converted received signal to a digital signal from an analog signal;

a phase deviation correction processing section which corrects a phase deviation of the signal converted to the digital signal;

an image rejection section which subjects the digital signal corrected in phase deviation to image rejection processing;

a narrow band limiting section which extracts a band signal of a desired wave from the image-rejected broad band

signal; and

a second frequency conversion section which subjects the band signal of the desired wave to frequency conversion processing for removing the offset.

10. A receiver which converts a band to a base band by a local oscillator of a quadrature carrier wave signal to perform demodulation processing, comprising:

a first frequency conversion section which converts a frequency to that of a low frequency band at a local oscillation frequency having an offset with respect to a reception frequency;

an analog-digital conversion section which converts the frequency-converted received signal to a digital signal from an analog signal;

an amplitude deviation correction processing section which corrects an amplitude deviation with respect to the signal converted to the digital signal;

an image rejection section which subjects the digital signal corrected in the amplitude deviation to image rejection processing;

a narrow band limiting section which extracts a band signal of a desired wave from an image-rejected broad band signal; and

a second frequency conversion section which performs frequency conversion processing to remove the offset from the band signal of the desired wave.

11. A receiver which converts a band to a base band by a local oscillator of a quadrature carrier wave signal to perform demodulation processing, comprising:

a first frequency conversion section which converts a frequency to that of a low frequency band at a local oscillation frequency having an offset with respect to a reception frequency;

an analog-digital conversion section which converts a frequency-converted received signal to a digital signal from an analog signal;

a phase deviation correction processing section which corrects a phase deviation with respect to the signal converted to the digital signal, and an amplitude deviation correction processing section which corrects an amplitude deviation;

an image rejection section which subjects the digital signal corrected in the phase and amplitude deviations to image rejection processing;

a narrow band limiting section which extracts a band signal of a desired wave from an image-rejected broad band signal; and

a second frequency conversion section which subjects the band signal of the desired wave to frequency conversion processing for removing the offset.

12. The receiver according to claim 9, wherein the

phase deviation correction processing section multiplies in-phase and quadrature components of the inputted digital signal to detect the phase deviation, multiplies the detected phase deviation by the in-phase component, and subtracts a multiplied result from the quadrature component to obtain a quadrature output.

13. The receiver according to claim 10, wherein the amplitude deviation correction processing section calculates the amplitude deviation by a value of a difference between square values of the in-phase and quadrature components of the inputted digital signal, and multiplies the value obtained by subtraction or addition of a value of the amplitude deviation with respect to a value proportional to an input amplitude by the quadrature component to obtain a quadrature output.

14. The receiver according to claim 11, wherein the phase deviation correction processing section multiplies in-phase and quadrature components of the inputted digital signal to detect the phase deviation, multiplies the detected phase deviation by the in-phase component, and subtracts a multiplied result from the quadrature component to obtain a quadrature output, and

the amplitude deviation correction processing section calculates the amplitude deviation by a value of a difference between square values of the in-phase and

quadrature components of the inputted digital signal, and multiplies the value obtained by subtraction or addition of a value of the amplitude deviation with respect to a value proportional to an input amplitude by the quadrature component to obtain the quadrature output.

15. The receiver according to claim 9, wherein the image rejection section comprises:

a HILBERT filter which subjects a quadrature component of the inputted digital signal to 90-degrees phase shift processing by HILBERT conversion;

a delay unit which delays and outputs an in-phase component of the inputted digital signal by the same time as a delay time in the HILBERT filter; and

an adder which performs addition or subtraction with respect to outputs from the HILBERT filter and delay unit.

16. The receiver according to claim 9, wherein the image rejection section comprises a complex coefficient filter comprising:

first and second coefficients predetermined to reject an image;

a first multiplier which multiplies the in-phase component of the input signal by a value of the first coefficient;

a second multiplier which multiplies the in-phase component of the input signal by the value of the second

coefficient;

a third multiplier which multiplies the quadrature component of the input signal by the value of the first coefficient;

a fourth multiplier which multiplies the quadrature component of the input signal by the value of the second coefficient;

a subtractor which performs subtraction with respect to outputs from the first and third multipliers; and

an adder which adds outputs from the second and fourth multipliers.

17. The receiver according to claim 10, wherein the image rejection section comprises:

a HILBERT filter which subjects a quadrature component of the inputted digital signal to 90-degrees phase shift processing by HILBERT conversion;

a delay unit which delays and outputs an in-phase component of the inputted digital signal by the same time as a delay time in the HILBERT filter; and

an adder which performs addition or subtraction with respect to outputs from the HILBERT filter and delay unit.

18. The receiver according to claim 10, wherein the image rejection section comprises a complex coefficient filter comprising:

first and second coefficients predetermined to

reject an image;

a first multiplier which multiplies the in-phase component of the input signal by a value of the first coefficient;

a second multiplier which multiplies the in-phase component of the input signal by the value of the second coefficient;

a third multiplier which multiplies the quadrature component of the input signal by the value of the first coefficient;

a fourth multiplier which multiplies the quadrature component of the input signal by the value of the second coefficient;

a subtractor which performs subtraction with respect to outputs from the first and third multipliers; and

an adder which adds outputs from the second and fourth multipliers.